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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

LEE, HWA S

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 07/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/721,056

Applicant(s)

KOMA, NORIO

Examiner

Andrew H. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19,21-28 and 30-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19,21-28 and 30-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 19, 21-28, and 30-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (5,717,224) in view of Lien et al (5,309,264) and Yamada et al. (5,880,797).

As for independent claims 19, 28, 37, 46, 54, 62 and dependent claim 63, Zhang shows a liquid crystal display comprising:

a first substrate;

a plurality of gate lines and drain lines formed on the first substrate;

thin film transistors;

an interlayer insulating layer covering the thin film transistors, the gate lines, and the drain lines;

a plurality of pixel electrodes each connected to the source of the corresponding thin film transistor and partially formed on the interlayer insulation film;

Zhang does not show the orientation dividing window, the common electrode, the liquid crystal, and the second substrate. Zhang also does not show the pixel electrode overlapping the corresponding gate or drain line.

Lien describes a liquid crystal display wherein the orientation direction of liquid crystal is divided by weak electric fields and/or electric fields in a sloped direction generated by the orientation control window. At the time of the invention, it would have been obvious to one of

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ordinary skill in the art to modify the liquid crystal display of Zhang to have the orientation dividing windows of Lien so that multiple domains can be created and thus increase the aperture ratio.

As to the overlapping pixel electrode, Yamada et al show that the pixel electrode overlaps both the gate and drain lines. At the time of the invention, one of ordinary skill in the art would have modified Zhang in order to have the pixel electrode overlap the gate and/or drain lines in order to increase the aperture by increasing the area of light transmission or in order to increase the capacitance.

As to Zhang not expressly showing the common electrode, the liquid crystal, and the second substrate, Official Notice is taken that common electrodes, liquid crystal and a second substrate are old and well known in the art and it would be inherent that a liquid crystal display has those elements. See In Re Malcolm 1942 C.D.589: 543 O.G.440.

As for the interlayer insulation layer, Zhang teaches that the interlayer insulation layer has a thickness of about 7,000 Angstroms and thus would inherently have a sufficient thickness to alleviate an influence on the liquid crystal layer from an electric field generated by the TFT, gate lines, and the drain lines and thus meets the structural limitations of claims 19, 28, 37, 54, 62, and 63. Furthermore, The functional recitation that "sufficient thickness to alleviate an influence on the liquid crystal layer from an electric field generated by the TFT, gate lines, and the drain lines" has not been given patentable weight because it is narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth 35 U.S.C. 112, 6th paragraph, and must be supported by recitation

in the claim sufficient structure to warrant the presence of the functional language. In re Fuller, 1929 C.D. 172; 388 O.G. 279.

2. As for dependent claims 21-23, 25, 30-32, 34, 39-41, 43, 47-49, 51-53, 55-57, 59-61, 64-66, 68, and 69 Zhang teaches that the interlayer insulation layer is about 7,000 Angstroms, thus it is at least 0.5 μm . Furthermore, Zhang teaches that the interlayer insulation layer is **about** 7,000 Angstroms and it would be It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the interlayer insulation layer to be at least 1 μm , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

As for dependent claims 24, 26, 27, 33, 35, 36, 42, 44, 45, 50, 58, 67, and 70 Zhang shows the pixel electrode 510 in Figure 5.

Response to Arguments

Applicant's arguments with respect to claims 19, 21-28, and 30-70 have been considered but are moot in view of the new ground(s) of rejection.

Papers related to this application may be submitted to Technology Center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the PTO Fax Center located in CP4-4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center numbers are 703-872-9318 for regular communications and 703-872-9319 for After Final communications

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If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

- a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and
- b) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa Lee whose telephone number is (703) 305-0538. The examiner can normally be reached on M-Th. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 703-308-4881.



Andrew Lee
Patent Examiner
Art Unit 2877
June 25, 2002/ahl



Frank Font
Supervisory Patent Examiner
Art Unit 2877